Space Weather Forecast

Issued on Monday 10 March 2025 at 13:07 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Isolated Moderate class flares. Spell of Active to G1 Minor Storms, and chance G2 Moderate storm intervals, expected day 3-4 (12-13 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only a few minor Common class flares observed. There are six visible regions on the disc, however these all relatively small and stable. The only notable development has been observed in the bipolar region in the northeast, with the emergence of a small reverse polarity region near its trailer spot.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: A declining connection to the fast wind of a coronal hole was observed. Solar winds fell from Strong at near 700 km/s, to being currently Elevated, around 520-580 km/s. Total Interplanetary Magnetic Field was Weak throughout. The north-south component was Weak and variable. Geomagnetic activity fell from initial Active (Kp4) intervals to Quiet to Unsettled (Kp1-3) thereafter.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) was at Background with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is forecast, with a chance of Isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: There are no CMEs expected to impact Earth. However, a very slight glancing interaction cannot be ruled out later day 1 into day 2 (10-11 Mar) from the Moderate flare CME which occurred on 07 Mar, as it passes to the south of Earths orbit. Ongoing fast winds are expected to continue slowly easing, with background or near background winds likely by day 3 (12 Mar). The next fast wind enhancement is then expected late day 3 or day 4 (12-13 Mar). Quiet to Unsettled conditions are expected day 1-3 (10-12 Mar) with a decreasing chance of Active intervals. Any fast wind connection later day 3 or day 4 (12-13 Mar) is expected to bring a further spell of Active to G1 Minor Storms with a chance of G2 Moderate storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to be at Background with no Solar Radiation Storms occurring.

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	30	70
Strong	G3	No	1	1	1	2
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	30	30	40	40
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	2	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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